

Applicant: Tommi Vuoristo  
PCT App. No.: PCT/FI03/00247

### **Claim Listing**

1–16. (cancelled)

17. (new) A method for use in winding a tissue paper, paper or board web in a slitter-winder comprising the steps of:

placing at least one core which is empty, so the at least one core is supported on and between a first winding drum and a second winding drum;  
in a first step bringing a winding shaft to a ready position to be pushed inside the at least one core;  
pushing the winding shaft inside the at least one core supported on and between the first winding drum and the second winding drum;  
winding a tissue paper, paper or board web on the at least one core with the winding shaft inside, so causing at least one web roll to grow about the at least one core, the growth of the web roll defining a growth direction;  
moving the winding shaft in the growth direction;  
removing the winding shaft from inside the at least one core when the at least one web roll has reached a selected size;  
removing the at least one web roll from between the first winding drum and the second winding drum; and  
repeating at least the first step.

18. (new) The method of claim 17, wherein the winding shaft has a fixed end and a free end, and wherein the fixed end is fixed to a first pulling sledge which moves on first guides, and wherein the free end of the winding shaft is attached, during the winding step, to a second pulling sledge moving on second guides.

Applicant: Tommi Vuoristo  
PCT App. No.: PCT/FI03/00247

19. (new) The method of claim 18, wherein, during the winding step, the winding shaft is moved in the direction of growth by moving the first pulling sledge on the first guides and by moving the second pulling sledge on the second guides, said first pulling sledge and said second pulling sledge moving in a corresponding manner.

20. (new) The method of claim 17, wherein the winding shaft has a fixed end and a free end, and further comprising the step of supporting the free end of the winding shaft by a support member when the winding shaft is not inside the at least one core.

21. (new) The method of claim 18, wherein, after the step of removing the winding shaft from inside the at least one core upon the completion of the at least one web roll and the step of removing the at least one web roll from between the first winding drum and the second winding drum, moving the first shaft pulling sledge and the second shaft pulling sledge on the first guides and the second guides, to a ready position for starting a new winding operation.

22. (new) A device for winding of a tissue paper, paper, or board web, in a slitter-winder, comprising:  
a first winding drum;  
a second winding drum;  
at least one web core supported on and between the first winding drum and the second winding drum; and  
a winding shaft mounted for motion into and out of said at least one core while said at least one core is supported on and between the first winding drum and the second winding drum, wherein the winding shaft is mounted for motion in a direction defined by a direction of growth of a web roll, as a web is wound on the at least one core to form the web roll.

Applicant: Tommi Vuoristo  
PCT App. No.: PCT/FI03/00247

23. (new) The device of claim 22, wherein the winding shaft has two ends, and one end of the winding shaft is fixed to a shaft pulling sledge moving on first guides and the other end of the winding shaft is detachably mountable to a second shaft pulling sledge moving on second guides.

24. (new) The device of claim 22, further comprising a support member for supporting a free end of the winding shaft when the winding shaft is in a position outside the at least one winding core.

25. (new) The device of claim 22, wherein the the winding shaft is integrally and functionally a part of the slitter-winder; and further comprising:

a pushing device for pushing finished web rolls onto a lowering device or lowering cradle;

a locking device for locking the at least one core against the first winding drum and the second winding drum, the locking device being mounted to the pushing device; and

a positioning device mounted to the pushing device, the positioning device for placing the at least one web core on and between the first winding drum and the second winding drum, wherein the positioning device is movable to press a tissue paper web against one of the first winding drum and the second winding drum so that the tissue paper web is unmovable .

26. (new) The device of claim 25, wherein the positioning device is a profile or pressing element which extends parallel to an axis defined by the web roll and which is pivotally attached to the pushing device by a bearing journal and is loadable at least against one of said first winding drum and second winding drum by a loading means.

27. (new) The device of claim 25 wherein the locking device is formed by at least one suction cup beam extends parallel to an axis defined by of the web roll.

Applicant: Tommi Vuoristo  
PCT App. No.: PCT/FI03/00247

28. (new) The device of claim 25, wherein the pushing device is arranged to operate after the winding shaft has been pulled out from inside the at least one core.

29. (new) The device of claim 28, wherein the winding shaft has a free end having an attachment neck from which the shaft can be attached, using bearings, to linear bearings of a frame forming part of the slitter by means of a shaft locking device, by which the winding shaft can also be relieved.

30. (new) The device of claim 29, wherein the shaft locking device comprises a backing spindle to keep the cores in place.

31. (new) The device of claim 25, wherein the first winding drum defines a first center line and the second winding drum defines a second center line, and wherein the winding shaft is mounted by bearings at a fixed end to a shaft pulling sledge, which moves vertically with respect to the first center line and the second center line on support of linear guides, wherein the shaft pulling sledge is movable horizontally in the direction of an axis defined by the at least one core.

32. (new) The device of claim 31, wherein the winding shaft is relievable by a relief means, acting on the shaft pulling sledge.

33. (new) The device of claim 31, wherein the winding shaft has a free end having an attachment neck from which the shaft can be attached, using bearings, to linear bearings of a frame forming part of the slitter by means of a shaft locking device, by which the winding shaft can also be relieved.

34. (new) The device of claim 33, wherein the shaft locking device comprises a backing spindle to keep the cores in place.